Wales (P. S.)

STRICTURE

OF

THE RECTUM.

By PHILIP S. WALES, M. D.,
Surgeon General, United States Navy.

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Stricture of the Rectum.

By PHILIP S. WALES, M. D., Surgeon General U. S. Navy, Washington, D. C.

DEFINITION.— *The rectum is liable, like other similarly constructed musculo-mucous canals of the human body, to the occurrence of a narrowing or co-arctation of its calibre, due in the majority of cases to inflammation, varying in origin, location and nature, and to malignant degeneration; in a few cases it may be traced to defective development, and to pressure from without by circumjacent tumors or otherwise diseased tissues. The course of the disease is chronic and insidious, and tends to terminate in death by exhaustion, preceded by hectic or septic fever, or by perforation of the bowel and peritonitis.*

ETIOLOGY.

Up to the beginning of the nineteenth century, all rectal strictures were designated by the term scirrhus, and referred to a common etiological origin; subsequently they were divided into two classes, the spasmodic and the organic. Organic strictures have been subdivided into, 1st, the simple; 2d, the specific; 3d, the malignant, and 4th, the congenital.

Formerly much difference of opinion was entertained as to the existence of spasmodic stricture. There cannot be any doubt that the intestinal walls, like all living contractile tissues, may assume an irritability from local or constitutional causes, which will dispose them to spasmodic contraction of a temporary character, when brought into contact with an irritating object, whether this be introduced from without, as a bougie, or formed within the body itself, as acrid discharges and hardened feces. The constant excitation of functional disturbance of the muscular walls may finally lead to inflammation and its sequelæ, organic changes and stricture. It is highly improbable however, that the spasmodic condition, pure and simple, endures sufficiently long to entitle it to rank as a distinct variety of disease, although the spasmodic element is always associated in greater or less de-

gree with organic stricture, and becomes especially manifest on the introduction of instruments of exploration, and by the presence of acrid or hardened fecal matters. The idea of the reality of a simple, permanent, spasmodic stricture was long entertained, and its association with organic stricture everywhere admitted. White* observed that "sometimes when a stricture is within reach of the finger it feels like a membranous ring, and when there is considerable pressure from an accumulation of the feces above, a regular contraction and dilatation of the fibres of the muscular coat of the intestine may be distinctly felt, similar to that of the *os tincæ* in time of labor. Though this kind of stricture is completely permanent, it may, I think, with strict propriety, be termed spasmodic, from its not being attended by any sensible thickening or induration in the coats of the intestine, but being merely a circular contraction of its muscular fibres." Spasmodic complication of organic stricture has been clinically demonstrated by Allingham,† who says he has seen strictures so tight that he could not get the end of his little finger into them, but when the patients were well under the influence of chloroform he has been able to pass one or two fingers through.

Organic strictures originate either from intrinsic or extrinsic causes. The intrinsic causes are such as are located in the bowel itself, while the extrinsic arise in the surrounding tissues and organs, and act from the exterior. The operation of all these causes however, is to determine, sooner or later, inflammatory changes, which finally lead to the production of narrowing of the intestine. The intrinsic causes of simple stricture are local irritation of mucous membrane by hardened or acrid fecal matters retained in the bowel, as occurs in persistent constipation, in obstinate dyspepsia, and in perverted hepatic and intestinal secretion, the habitual injection of stimulating substances and drastic cathartics, irritating enemas, as turpentine, and in one case, mentioned by Saignac, by the use of sulphuric acid by mistake in an injection, and lastly the swallowing of foreign bodies, as fish-bones, seeds, rough angular substances which catch in the folds of the mucous membrane and establish foci of ulceration. The mechanical effects of intussusception, catarrhal and gonorrhœal processes, diarrhœa, and especially dysentery, furnish also inflammatory and ulcerative conditions in which the disease

*Observations on strictures of the Rectum and Colon, Bath 1824 p. 34

†Diseases of the Rectum, Phila., 1873, p. 145.

may originate. Curling * believes that this takes place more frequently than is generally supposed. Perret † referred eight of the cases collected by him to pederasty. Metastases of cutaneous eruptions, suppression of habitual discharges, congenital narrowing of the sigmoid flexure, and peculiar predisposition of certain families, and the mechanical effects of a preternaturally projecting sacro-vertebral angle ‡ have been asserted as occasional causes. || It has also been referred to certain traumatic causes—the accidental or intentional introduction of foreign bodies, as the nozzle of a syringe, the wearing of a pessary as occurred in Whitehead's case, blows or falls pon the abdomen or perineum, violent muscular exertion in defecation or tenesmus, surgical operations by knife or cautery for hemorrhoids, fistulæ or prolapses.

Among the extrinsic causes that may be operative in lessening the calibre of the rectum the most common is carcinoma of the womb, as in the case related by White,§ occurring in a patient of Dr. Barlow; a scirrhous uterus had produced an adhesion of the parietes of the gut and complete obliteration, and the feces were discharged through an opening between it and the vagina. Sometimes the result is due to an enlarged ovary or pelvic hematocele, as happened in two cases of Curling, where tapping was required to relieve pressure on the bowel; or to the long-continued pressure of the child's head in labor, bruising the bowel, and lighting up inflammation.

Nine of the twenty-eight cases of Curling followed labor. An enlarged prostate may also encroach upon the rectum, or a large calculus, as related by Morgagni as having occoccurred in a patient of Tulpius. "The intestine was so depressed by two calculi of the urinary bladder, that being straightened and collapsed, it produced many membranous filaments which so closely interwove the internal parietes of its tube as to prevent the possibility of it passing any excrement." A case is given by Mr. Travers ¶in which an excessive accumulation of fat external to the rectum caused

*Diseases of the Rectum, p. 125.

†Essai sur les retrecissements.

‡Hill, Edinburg Med. and Sur. Journal.

‖White, Diseases of the Rectum.

§Strictures of the Rectum and Colon. Bath. 1824.

¶Medico-Chirurgical Transactions, vol. XVII, p. 361.

contraction, and Ashton* states that he had in his possession a specimen of strictured rectum produced by a deposit of fibrous tissue external to its coats. The same results may follow pelvic cellulitis in which the exudation forms bands or cords about the bowel. This happened in a case reported by Broca, in which the uterus, enlarged by fibroids, had pressed upon the rectum, to which it had formed close adhesions; two narrow bands of lymph passed around the bowel producing a valvular stricture. Tumors or inflammatory products in the pelvis or ischio-rectal fossæ, have been alleged as furnishing a mechanical hindrance to the lumen of the rectum.

Venereal diseases are certainly, next to malignant affections, the most common cause of rectal stricture. Godebert,† in addition to his own twelve cases of stricture, collected fifty-four from other sources, making in all, sixty-seven cases; of these, forty-seven had had antecedent syphilitic troubles.

It was recognized long ago as in someway connected with syphilis; Morgagni used anti-syphilitic remedies in such cases, because they were most frequently, as he states, preceded by syphilis. Ricord‡ admitted infecting chancres of the anus, having examined a woman in whom the induration was well marked high up in the rectum, and who readily furnished an explanation of its presence. Vidal de Cassis records the occurrence of chancrous induration of the entire rectum, and states that it was the cause of stricture. In 1857 a case of hard chancre of the rectum followed by sore throat and syphilitic roseola came under my observation. A messenger boy on board ship was infected by a man, the act being acknowledged by both parties, as the vessel was leaving New York for a long cruise, which afforded me ample opportunity to study the progress of the disease in both cases. The boy was cured without stricture following. A case is related in the Medical Journal of the U. S. S. Tennessee, of a man who reported to the surgeon, complaining of soreness and pain in the anus in defecation; on examination two chancroidal ulcers were discovered just within the grasp of the external sphincter, supposed to have originated from pederasty. It was treated locally and the man recovered, and fourteen months later was under observation and showed no evidence of any rectal disease. Sauri Ricardo‖ also relates a

*Diseases of the Rectum, Philadelphia, 1865, p. 210.

†Thèse de Paris, 1873.

‡ Traité des maladies vénériennes, Paris, 1865.

‖ Thèse sur les rétrécissements fibreux du rectum, Paris, 1868.

case of direct inoculation: a woman was infected by her husband in an unnatural connexion, the disease ran on to secondary constitutional manifestations, and then resulted in a double stricture of the rectum and several fistulæ. The teachings of Ricord and Cullerier were widely accepted, that is, the doctrine of unicism, which denied any distinction between the hard and the soft chancre, and both were accredited with the power of producing rectal disease as a secondary or tertiary result. The labors of Bassereau, Clerc, Diday and others, fully established the fact that there were two orders of venereal sores, the infecting or hard chancre and the non-infecting sore or chancroid; the theory of dualism was thus fully proven in 1852. This doctrine was first applied to rectal diseases in 1854 by Gosselin who, in an able memoir,* took the ground that rectal ulcerations and stricture of venereal origin were not syphilitic, but the result of auto-inoculation from vulvar chancroids, followed by a peculiar form of inflammation of the anus, and this view was supported by the fact of the inefficiency of anti-syphilitic remedies, and the frequency of the disease among women. He subsequently re-affirmed the doctrine in his clinical lectures.†

Després‡ attributed the rectal changes to phagedenic chancres and mucous patches of the anus and rectum, which in the process of repair determines stricture by contraction of cicatricial tissue. The doctrine of Gosselin has been pretty freely and successfully attacked by the champions of the syphilitic theory.

Fournier‖ asserted that the rectum may be the seat, 1st. of simple chancre, of phagedenic chancre, and in rare exceptions, of syphilitic chancres; 2d. tertiary ulcerous syphilides; 3d. gummata; 4th. ano-rectal syphiloma. The ulcerous syphilide does not differ from the same condition in other parts, and may either extend into the bowel or affect it primarily; the latter origin is, however, exceedingly rare. The syphilomatous changes which have not hitherto been histologically determined, give rise in advanced stages to a retractile fibrous tissue and sclerosis of the rectal walls, and are the most common cause of stricture. Fournier has never seen gummata in the rectal walls. Emile Vidal,§ on the other hand, considers certain diffused products

*Archives de medicine, tome i., p. 666, 1854.

†Cliniques chirurgicales, tome 8, p. 878.

‡Archives de medicine, Mars, 1868.

‖Lesions tertiaires de l'anus et du rectum, Paris, 1875.

§Dictionnaire Encyclopédique, tome XII, p. 689.

in the rectal walls analogous to the gummata of the muscles as of this nature, although it does not assume the ordinary globular form of gummata. Verneuil* in a discussion at a meeting of the surgical society on rectal stricture, cited a genuine case of rectal gumma, and Esmarch,† speaks of syphilitic ulceration as occurring much more frequently than has been heretofore believed. In the earlier stages it cannot be distinguished, or if at all, with difficulty on autopsic examination from the ulcerative processes met with in dysentery, scurvy and follicular catarrh. He adds. "In many cases, however, certain phenomena present themselves later, which are characteristic consisting in a peculiar hypertrophy of the deep layers of connective tissue which should, with propriety, be regarded as gummatous." Von Bärensprung ‡ has made similar observations, and many undoubted examples of gummatous metamorphosis of the rectal walls might be cited from German authorities. This process has been observed in other localities of the intestinal canal containing similar anatomical elements as the rectum. Cornil ‖ describes such changes as occurring in both the stomach and intestinal walls.

The syphiloma of Fournier consists in an infiltration of the ano-rectal region, by an undetermined initial structure, which is prone to metamorphosis into retractile fibrous tissue. The infiltrated material forms a band of greater or less strength, and varying in thickness from a few millimeters to a centimeter, and is never found in patches or in parts of the circumference of the rectal walls. There is no ulceration and no cicatrix; its predilection is for the ampulla, and only rarely does it invade the sphincteric zone. The next stage is that in which contractile fibrous tissue is found, and this is the most common origin of the co-arctation, although in rare cases it may occur from contraction of cicatricial tissue. Trélat§ says that a certain number of rectal strictures is due to the syphilitic diathesis, and as they are very late in appearing, they should be called quarternary, and take rank with the gummata. In these cases it is necessary to assume hyperplasia of the sub-mucous connective tissue, developing under the influence of the syphilitic diathesis. In a discussion at a meeting of the Surgical Society, these views were supported by Ver-

*Bulletin de la Société Chirurgicales de Paris, Vol. XVII, 1872.

†Handbuch der Allgemeinen und Speciellen Chirurgie, Band. iii, s. 92.

‡Annalen des Charite-Krankenhauses, 1855, Berlin.

‖ Pathological Histology, Phila., 1880, p. 512.

§Dictionnaire Encyclopédique, tome. xiii, p. 730.

neuil, Panas and Guérin. It has been shown by clinical experience that there are cases of syphilitic diathesis in which, though no morbid activity is prominent, disturbances in the structural integrity of any part, excited by common causes, may assume the special and peculiar aspect of syphilitic action.

Allingham and a majority of the English school of surgeons refer the ulcerations and strictures of the rectum mainly to syphilis; in summing up his own statistics Allingham states that in women forty-two out of seventy-nine had suffered, or were suffering from undoubted constitutional syphilis, and in twenty males half were in the same condition; thus, out of the total number of ninety-nine patients, fifty-two, or more than one half, were syphilitic. This variety of stricture is much more frequent in women than in men, a fact that is supposed to find its explanation in the topographical relations of the vulva and anus. According to White it generally commences either with an appearance of ulceration or an excrescence about the verge of the anus, and extends upward as far as the finger can reach, while Allingham, on the contrary, says this disease does not begin in the anus, but at least an inch up the bowel, which is incompatible with the theory of extension from the exterior.

My own experience is in perfect accord with the preceeding views of the English surgeons. I have at the present time under treatment two cases of stricture in males, which I regard as tertiary phenomena. In both there were hard chancres followed by cutaneous syphilides but never by any anal ulceration. The rectal disease did not manifest itself until nearly two years after the initial lesions occurred; in one case it has slowly progressed for four years, and in the other has endured one year.

Tubercular deposits in the rectum have been rarely observed as the cause of ulceration and stricture, especially as a primary lesion; they resemble the same lesion in other portions of the intestinal canal. They are usually located in the anal region and determine abscess and fistulæ, or as occasionally happens by their numbers and proximity, become confluent, and form a circular band or collar, which in undergoing cicatricial metamorphosis determines stricture. In tubercular subjects, ulceration may also arise from defective nutrition of the rectal walls independent of these deposits.

Scrofulous degeneration has been cited as determining, in exceptional cases, rectal ulceration with consecutive stricture.

Huguier,* in an elaborate article, describes a form of lupoid ulceration of the vulvo-anal region, *esthiomène*, in which there is sometimes infiltration of neo-plastic matter into the walls of the lower part of the rectum followed by stricture. In one case the induration and narrowing reached to the peritoneal cul-de-sac, and was formed of firm and hard fibrous tissue containing in its layers adipose deposits. He does not regard it as syphilitic, but as a manifestation of the scrofulous diathesis.

The malignant stricture is due to the development of epithelioma and scirrhus in the walls of the bowel, and by their growth gradually obstructing its lumen.

Congenital stricture results from the excessive development of normal structures, as of the folds of the mucous membrane of the bowel, or from defective development of parts, as of the anal aperture—atresia. This form has been known to occur in several members of the same family.

As to age, stricture is incident to adult life, between twenty-four and sixty years. There is a preparation in the museum of St. Bartholomew's Hospital, taken from a child five years old, caused by the use of a clyster pipe which perforated the walls of the rectum and vagina. Curling records two other cases, one from injury in a girl of fourteen, the second in a girl of eleven; the origin of the latter could not be traced; and Bushe reports one in a lad nine years of age. Of Curling's twenty-eight cases, twenty-six were between twenty and fifty years of age; one was fifty-two and one sixty-seven.

As to sex, in Curling's twenty-eight cases, twenty were of the female sex, and in nine of these the disease commenced after labor; in some of these, they were distinctly attributed to an injury at that time. In Allingham's† table of seventy cases, sixty were women and ten, men.

PATHOLOGICAL ANATOMY.

Opportunities for cadaveric examination in the early stages of rectal stricture are excessively rare for obvious reasons. It is not until extensive secondary changes induced by the obstruction have been wrought in the rectum and adjacent parts that death ensues. The changes observed in stricture vary with the stage of the disease, its locality and origin. White observes that the diversified appearances

* Memoires de l'Académie de Médecine, tome xiv, p. 501.

†Op. cit., p. 224.

of contracted rectum are too numerous to occur under the observation of any individual practitioner so as to render him practically acquainted with the different modifications of the disease, and this fact accounts for the discrepancies which may exist on the subject.

Upon the living subject the nascent changes may be examined with the finger and with a good speculum, and in favorable light may be inspected with ease. In all cases of stricture, with the exception, perhaps, of the congenital, the disease is the result of inflammatory changes induced in the mucous and connective-tissue layers of the rectum. These changes may be restricted at first to the mucous membrane, or to this membrane and adjacent connective tissue, or may chiefly involve the latter. There are many cases in which ulceration has undoubtedly existed, and to a considerable degree, as is shown by autopsic examination, in dysentery and typhoid fever, without producing stricture. Annesley and Martin, who had large experience in tropical dysentery, declared stricture to be a rare result, and I have myself never found this condition in the cases examined by me in China during a severe epidemic.

Woodward* in his compilation states that he was unable to find a recorded case substantiated by post-mortem examination, following flux contracted during the civil war.

These cases find an explanation in the fact that the pathological process does not involve the deeper structures, and that there is a difference in the anatomical structures of the various sections of the intestinal canal occupied by it.

The mechanism of the formation of rectal stricture varies. In certain cases it is the result of traction by newly-formed tissue; in some the mucous membrane is extensively destroyed and replaced by cicatricial tissue, the contraction of which narrows the bowel; in others, the rectal walls are infiltrated by a peculiar neoplastic material which undergoes fibrous metamorphosis and contraction; and in a fourth class fall those cases in which the narrowing is due to malformation of structure.

When there is a moderate degree of inflammation and circumscribed ulceration in the connective tissue, the stricture is sometimes of a membranous character, resulting from the mechanical displacement of a fold or plica of the mucous membrane by the contraction of the reparative cicatricial tissue filling up the ulcerative gap. The

*Medical and Surgical History of the War.

fold assumes a semi-lunar form, extending around a greater or less extent of the circumference of the bowel, opposite to the point of the ulceration, where the cicatricial tissue has dwindled to a firm nodule. The lumen of the bowel will then be placed laterally on the side of the cicatrix. The mechanism of the so-called diaphragmatic stricture is identical with that of the semi-lunar, the fold being broader on the one side than on the other. This stricture consists of a double layer, formed by the infolding of the mucous membrane, between which will be found connective tissue and a few of the circular muscular fibres. In the progress of the case the constant contact of retained fecal matters will induce a still higher grade of inflammatory action, so that both the mucous and muscular elements forming the fold become hypertrophied and indurated. Kohlrausch found in the cadaver of an executed criminal a well developed stricture, which at first he took to be scirrhus. Close examination revealed, however, that the mucous lining was sound, and formed a considerable duplication, in which the hypertrophic circular fibres formed a ring several lines thick, the longitudinal fibres being continuous over the contracted spot.

When the ulcerative destruction is more considerable, down to and even involving the muscular coat, the cicatricial tissue occupies a broader extent of surface, and in its subsequent course it forms hard, callous contractions, varying in extent according to the amount of mucous and connective tissue that has been destroyed. According to Melassez* the narrowest part of the stricture consists of a structure, in all respects identical with cicatricial or embryonic tissue.

A form of stricture without ulceration arises from persistent chronic inflammation of the mucous and connective tissue layers, especially of the latter, in which, after a while, hyperplasia takes place, and they are converted into a fibrous contractile tissue which diminishes the lumen to a greater or less extent.

In the syphilitic stricture, located usually in the region of the sphincter, the mucous and connective tissue layers become infiltrated by neoplastic matter, which by contraction narrows the calibre of the bowel by the formation of a hard and thick ring. Gosselin† says that in three autopsies made by him he found the stricture fibrous, and he was careful to determine whether it was cicatricial or formed

* Dictionnaire Encyclopédique, art. Rectum.

†Archives Générales de Médecine, Vol. 2, 1854.

by the mucous and submucous cellular tissues. He could not separate the latter with a scalpel, as can be done in a normal condition, but they had not been replaced by cicatricial tissues, but by the inflammatory action had undergone a fibrous transformation, and the muscular coat was slightly hypertrophied. Melassez, in venereal strictures, found between the muscular fasciculi at the point of greatest contraction, a round-celled neoplasm which occasionally involved the fibres themselves and was capable of development into a fibrous tissue. The depth of these strictures is from five to ten millimeters, and they are are rarely more than a centimeter in width.

In malignant stricture there is usually more extensive infiltration of the rectal walls, and the co-arctation is longer, from one to several inches. All three of the layers are matted into one mass, the mucous surface being more or less studded with hard protuberances and ulcerating areas.

Congenital strictures are the result of abnormal enlargement of the normal mucous folds, or so-called rectal valves, or defective development of the anus. They present various appearances, according to the degree of development, from a narrow crescentic fold to a complete ring-like projection. Roser describes a case in which two folds, one inch from the anus, were arranged similarly to the valves of the veins, so that the pressure of the descending fecal matters closed them completely.

In the progress of stricture as the co-arctation increases, additional sources of irritation arise and secondary alterations supervene. The bowel above the stricture enlarges in capacity in consequence of the accumulation of feces, and forms a sac-like pouch of three or four inches or more in diameter with thickened walls, the mucous membrane of which, sooner or later undergoes hypertrophy, is closely adherent, and finally inflames and becomes eroded and ulcerated in patches of greater or less extent, supplying a secretion of mingled blood, pus and mucus. The submucus connective tissue is converted into dense contracted fibrous tissue, to a greater or less degree corresponding to the extent of the stricture, and merging above and below into the normal structures. The muscular coat, especially its circular fibres, and the inter-fibrillary connective tissue, take on a hypertrophic condition, becoming three or four times thicker than normal, from constant efforts of contraction to force the contents of the

bowel through the stricture, so that even after the removal of the stricture they regain their contractility slowly. The peritoneal coat generally remains uninvolved. Below the stricture the bowel is in many cases altogether normal, in others there is injection of the mucous membrane, with ulceration to a greater or less extent, and a general narrowing and loss of contractility, but in rare cases the reverse of this has been noted. The stricture itself, in the progress of the case, is composed of a dense white fibrous tissue formed by the metamorphosis of the normal connective tissue elements of the submucous, inter-muscular and sub-peritoneal layers, or by the transformation of neo-plastic deposits. Yellow elastic fibres in increased quantity have also been observed. It is usually hard, gristly, creaking under the knife, and presenting a shining surface. The mucous membrane covering the stricture is sometimes intact, but more often greatly altered and covered with granulations.

In a great many instances there are shrunken hemorrhoidal excrescences, sometimes condylomata, fissures, infiltrations of the anal tissues, painful excoriations and eczema, or fistulous canals running in various directions to the perineum, to the vagina, or to the bladder.

In the case of Talma, the celebrated tragedian, the walls of the sacculated expansions above and below the stricture had come in contact and adhered, and the formation of a communication between them was progressing when death occurred, showing the reparative efforts of nature when the natural channels are blocked up by disease.

In those co-arctations formed by chronic inflammations of the submucous tissues, the follicular glands on the borders of the stricture and their interstitial tissues sometimes form a broad prominent ring with a grayish-white velvety surface, which on section displays a soft consistence and whitish color, and when pressed there issues from the surface a milky juice.

There are certain peculiar cases of stricture in which the mucous membrane within the verge of the anus and above becomes thickened and studded with hard, rough, papillary or teat-like projections, sometimes few in number, at others beetling the surface quite thickly. In these cases there is usually a great decrease in the calibre of the intestine in the diseased portion. These excrescences are associated with a purulent slimy discharge, tinged with blood, that escapes with

every stool, and in crepitation, coughing, and during tenesmus. In one of my own cases, the history of which will be given further on, it escaped involuntarily while the patient was walking. This condition often makes the life of the victim wretched by the frequent and pressing necessity of evacuating the rectum, so that he is almost debarred from social intercourse and the pursuit of business. This condition is said to occur when there is no stricture.

Dessault.* under the heading of *Scirrhosities of the Rectum*, describes it as consisting in hard and reddish tubercles which elevate themselves upon the internal surface of the rectum, or even without the intestine. More or less rapid in their progress, they assume a thousand different forms, sometimes having a pedicle, at other a large base, often so multiplied that the whole membrane of the intestine seems scirrhous, extending up the rectum six or seven inches, and even into the colon, whose cavity is partly obliterated. These tubercles increase, shut up the intestine completely and finally ulcerate, occasioning frequent hemorrhages, and open into the vagina. He believed this condition to be a common consequence of venereal affections.

Colles† states that in these cases, of which he gives a tabular exhibit of sixteen, excrescences are seen about the anus, partly formed by the lining of the gut. On introducing the finger into the rectum a hardness and roughness, caused by innumerable protuberances is to be felt at different heights. In some it commences immediately at the verge of the rectum and extends nearly as high as the finger can reach; in other cases this morbid condition does not extend beyond that portion included by the sphincter; in other cases again the disease is seated still higher up. The hardness which is felt in the substance and neighborhood does not always uniformly surround it. In some instances the hardness is felt at a particular spot, as if a tumor lay connected with the coats of the intestine at this part. An autopsy made in one case revealed the diseased condition extending along the colon. The rectum was closely adherent to the sacrum, and the bladder was thickened and contracted. He did not believe these cases to be either syphilitic or malignant. They were not amenable to mercury, nor was the constitution impaired for months. One case was of ten year's duration.

*Surgical works, Phila., 1814, p. 368.

†Dublin Quarterly Journal of Medical Sciences, Feb. 1854, p. 82.

Brodie* sketches the appearance of a disease of the rectum liable to occur in women, most frequently after labor, characterized by chronic inflammation, a copious discharge of mucus and pus, and frequent and painful passages. The inner surface of the mucous membrane is irregular to the touch, as if it were lined with a multitude of small, flat excrescences; or as if the finger came in contact with a surface covered with warts. It is generally accompanied by a circular contraction or stricture, an inch and a half or two inches above the anus, which he regards an accidental and not a necessary accompaniment of the disease. White also refers to this tuberculated condition of the bowel lessening its capacity; these are sometimes large, at others, small and numerous, do not protrude from the sphincter, and have an indurated feel differing from hemorrhoids; he had not seen many instances in his practice.

In malignant stricture the disease often involves several inches of the bowel, but is usually more restricted; it implicates the walls throughout their thickness, and occasionally but slight vestiges of the normal structure are left behind. The parts are lumpy and hard, and the inner surface of the gut is occupied by ulcerative patches of varying size, or by one great mass of ulceration.

The most varied statements have been made as to the location of stricture. This conflict of opinion has been due, in a measure, to the fact that these statements have been based upon a consideration of the different varieties of stricture as a class, instead of regarding them in separate groups according to their origin.

Perret has classed his fifty eight cases so as to show the influence of various diseases in determining the location of stricture. In four cases in which the anus was involved, the causes were respectively, excision of a fistula, inveterate diarrhœa, hemorrhoids and syphilis; in thirty-two in which the stricture was located within six centimetres, the causes were distributed in the following order: pregnancy, one; abscess of the ischio-rectal fossa and vaginal walls, three; cauterization of hæmorrhoids, two; inflamed hemorrhoids, one; hemorrhoidal flux, one; voluntary retention of feces, one; dysentery, one; inflammation of the rectum, two; pederasty, five; syphilis, six; in three cases when the stricture was located at six centimetres, one each arose from prolapsus of the rectum, fracture of the coccyx, and stercoral retention. In seven cases, between six and seven centime-

*Lecture on Diseases of the rectum, p. 236.

tres, two originated from foreign bodies, two not noted; two from abscess of the pelvis, and two from dysentery. In the four cases at nine centimetres, two were attributed to syphilis; one, to enteritis; and in one the cause is not stated. In five cases beyond nine centimetres, one arose from fibro-plastic exudation about the rectum from uterine disease; two from dysentery, one from prolapsus of the rectum, and one from stercoral retention. The last group of three cases in which the stricture was at the junction of the rectum with the colon; one originated from abscess in the pelvis, and of two cases there was no report.

White* asserts that the situation where we most commonly meet stricture in the alimentary canal is near the termination of the colon, and the beginning of the rectum. He makes a distinction in this respect in the varieties, for he adds: "So seldom, indeed, does simple stricture take place within reach of the finger, that on looking over a list containing one hundred and fifty cases, I do not recollect meeting with half a dozen in this number that were within reach."

Salmon† places it in the majority of cases that fell under his observation, at a distance of five or six inches from the anus, and next in frequency at the junction of the sigmoid flexure with the colon. Allingham‡ remarks: "Fortunately strictures of the lower bowel are generally within reach and sight, but occasionally they are found high up in the sigmoid flexure, or still more distant from the anus." Brodie§ puts them at the lower part of the gut within the reach of the finger, although he saw one at six inches above, and one at the sigmoid flexure. Ashton‖ assigns the usual seat within two or three inches of the anus, and occasionally higher up in the sigmoid flexure.

¶Perret, in a valuable memoir, gives the following result of fifty-eight autopsies of stricture cases. In four the anus was involved, the narrowing extending up the bowel to different heights; in thirty-two, the stricture was within six centimetres; in three, at six centimetres; in seven, between six and nine centimetres; in four, at nine centimetres;

*Op cit. p. 41.
†On Stricture of the Rectum, p. 23.
‡Op. cit. p. 197.
§Medical Gazette, Vol. xvi, p. 30.
‖Diseases of the Rectum, Philadelphia, 1865, p. 213.
¶ Essai sur les rétrécissements, Paris, 1834, p. 34.

in five, beyond nine centimetres; and in three, at the junction of the rectum with the colon.

Gosselin* in speaking of syphilitic strictures exclusively, avouches that in all of his cases, those in which he had made autopsies and in those in which he had not, the stricture was found between four and five centimetres above the anus, so that the tip of the finger encountered it when introduced to the depth of the first phalangeal joint. He does not positively affirm that syphilitic strictures are always located here, but it was the location in his own twelve cases and in others which he had seen. At the distance of five or six centimetres is the junction of the sphincteric with the ampullary part of the rectum, which he looks upon as the seat of election of stricture as is the membranous urethra. Curling† says it varies, but is commonly at the lower part of the gut from an inch and a half to two inches from the anus. In a table of twenty-eight cases, in twenty-one the stricture was at this distance; in two it was somewhat nearer, and in five at a greater distance. In three of the latter the stricture was at the point where the sigmoid flexure terminates in the rectum, which naturally presents a slight contraction and is well known to be liable to stricture.

The thickness or depth, and the width of stricture of the rectum differ with its progress and origin. In the case of the membranous folds and fibrinous bands, the thickness is in proportion to the extent of the projection into the lumen of the bowel, and varies from a quarter to half an inch. Gosselin‡ asserts that the thickness is never very great; upon the cadaver he has found it from five to ten millimetres, and upon the living subject in eight cases where incisions had been made of three to four millimetres in depth, he has not exceeded the limits of the rectal walls. As to the width, it ranges from the cord-like narrowing of a thin-edged fold of the mucous membrane to a band of several inches in length. In specific stricture Gosselin states that it rarely attains a centimetre, so that the finger, in his cases, was always enabled to reach its superior border. Ashton§ disposes of the matter by stating that "a difference exists with regard to the extent to which the bowel is affected longitudi-

*Op. cit.
†Diseases of the rectum, p. 123.
‡Op. cit. p. 27.
§Op. cit.

nally; the induration may be only a few lines in width, or may extend to several inches."

The degree of contraction varies considerably with the progress of the local changes; even in cases of moderate degree the difficulty of extruding the feces is considerable, while after death the stricture may be found to be passable by one or two fingers, although the symptoms indicated an almost total occlusion. It must be remembered in this connexion, that the stricture is always more open after death. In congenital stricture the aperture is often scarcely large enough to admit the point of a probe; and sometimes the anal portion is reduced to a very narrow canal with resisting walls that present great difficulty to the passage of the intestinal contents. As to number, the stricture is usually found single, though cases are recorded where there have been two or three distinctly constricted points. Curling met with two separate strictures in the rectum, and believes such cases rare. Perret* found only four in fifty eight cases where there was more than one stricture.

Very little satisfactory and accurate information can be gleaned from the published records as to the frequency of stricture. Doubtless many cases of this sort have been grouped in mortuary reports under the titles of ileus, intussusception, constipation, obstruction of the bowels, diarrhœa, enteritis, dysentery, colic and "unknown."

Its frequency will also be varied by the class of patients and by race. For instance, venereal stricture is more common among the lowest rank of females, while other forms are of equal frequency among all orders. Mayo† is of the opinion that stricture is more common in the higher walks of society than among the poor.

Allingham states that the native population of South Africa seldom suffers from rectal diseases. It is certainly rare among sailors, for among 29,725 cases of all diseases reported during the years 1879-80-81, there were only 218 of rectal trouble, a rate of little over six per cent. Of these, 185 were cases of hemorrhoids, 6 of fissure, 6 of prolapsus, 20 of fistula, and 1 of proctitis; and not a single case of stricture. In Allingham's table of 4,000 cases treated at St. Mark's Hospital, there were 178 of stricture, a ratio of 4.4 per cent.

*Essai sur les rétrécissements, Paris, 1855.

†Diseases of the Rectum.

SYMPTOMS.

Stricture of the rectum is an insidious disease, and in its early stages may be overlooked, even for months, according to the seat of the ulceration and the rapidity of its extension; it is rarely the case that its presence is manifested by pain or tenderness in the abdomen. Usually the symptoms begin to attract attention when it has progressed so far as to establish a mechanical hindrance to the discharge of the intestinal contents, so that the earliest manifestation is constipation, at first moderate or fugitive, and later of an obstinate character, requiring the constant use of injections or cathartics. There is more or less pain, and a sense of weight or pricking in the rectum and about the pelvic region, especially in the violent straining that ensues at every attempt at defecation; the calls to stool are often frequent and unsatisfactory, the feces being ejected spasmodically in small quantities with the escape of wind; or tenesmus with the passage of small mucous discharges may be a prominent feature of the difficulty. Allingham* states that in a majority of cases the earliest symptom is morning diarrhœa of a peculiar character. What the patient passes at night is generally wind, a little, loose motion, and some discharge resembling coffee grounds, both in color and consistency; occasionally the discharge is like the "white of an unboiled egg;" or a "jelly fish;" more rarely there is matter. On seeking the closet a second time, the motion is lumpy and occasionally smeared with blood; afterwards the patient goes about his business for the most of the day. This is quite indicative of the disease, and can only be confounded with similar symptoms due to cancer.

In certain cases the discharges are at first fecal and moulded, and present various aspects; sometimes fragmentary, assuming a rounded shape like marbles, or that of broken pieces, at others of varying lengths, of the diameter and shape of the little finger, or as small as a pipe stem, or compressed in a tape-like form, or rounded and grooved. The shape of the feces is dependent somewhat upon the position of the stricture and the condition of the rectum. When the narrowing is high, and the muscular contractility impaired, a fecal mass may collect below, and be discharged of full size; if, however, the bowel retains its normal expulsive power, this does not

*Diseases of the Rectum, Phila., 1882, p. 223

result, but the feces present a diminished calibre as in stricture occurring low down, which impresses upon them the abnormal form unaltered by the anus. This sign is little characteristic, however, as the same variously figured stools may be passed by persons free from stricture, as is seen in cases of irritable rectum and anus. These feculent moulded discharges frequently alternate with diarrhœa, as the collected matter causes more or less irritation of the bowels and secretion of mucus, and mingling with the latter is discharged either as a fluid, or a soft and pultaceous mass. When ulceration occurs, there will be more or less pus present, and often blood; in certain cases there is a constant escape of brownish fluid variously tinged with blood.

Although the discharges, solid or fluid, may appear sufficient to free the bowels, yet as the case progresses, there often is a daily residue, so that the fecal matter gradually increases, and distends the abdomen sometimes to an enormous extent, as in the well known case of the French surgeon whose belly gained such a girth that he could not touch the points of the fingers in front, and after death fifty pounds of matter of different color and consistence were removed.

Various symptoms will arise from the mechanical action of such accumulations; the functions of the upper part of the intestinal tract become deranged, and as a result there is gastric and intestinal dyspepsia, vomiting, loss of appetite, and the food disagrees with the patient, and often passes through the body in a few hours incompletely digested; there are rumblings in the bowels, of a croaking character, or like the gurgling of water in a bottle, and gaseous distention of the abdomen, with a sense of oppression and weight, and colicky pains. Occasionally the sensation is as though the body were girded with a cord. The contractile power of the rectum and of the sphincters becomes impaired, and the fluid contents of the bowel then pass involuntarily.

The constant and harassing discharges deteriorate the general health, the functions of nutrition become disordered, and the patient grows pale, often presenting an earthy tinge of skin. There is an indisposition to exertion, more or less mental depression and gloomy forebodings, irresolution and timidity of conduct; emaciation increases, and finally hectic or septic fever supervenes. Other symptoms may arise in the course of the malady, such as dull headache, especially in the occipital region, neuralgic pains in the small of

the back, region of the sacrum and in the thighs, extending even to the feet and occasionally to the penis; cold feet, cramp in the calves of the legs, fullness of the head, palpitation and phthisical manifestations in persons disposed to that disease, and evidences of amyloid degeneration of the viscera.

Complications originating in the sympathy of the genito-urinary organs may give rise to irritability of the bladder, frequent micturition, and in the female to uterine disturbances. Indeed, cases of stricture of the rectum have been often confounded with diseases of the uterus or bladder.

Cases occasionally terminate speedily by a foreign body catching in the stricture and producing all the phenomena of complete obstruction, or causing illness and death after days of suffering. A low form of peritonitis, attended with considerable abdominal pain, aggravated by pressure and motion, is liable to complicate stricture.

Hemorrhoids are commonly present from the constant straining or from obstruction to free venous circulation; fragments of hard and irritating particles may be caught above the stricture and determine fistulæ, which reach the perineum or bladder and in the female, the vagina. The inflammatory and ulcerative action occasionally produce fissures, which add greatly to the suffering already entailed by the stricture, and in syphilitic cases the anus may be surrounded with condylomata. In certain cases of stricture there is a spasmodic constriction of the sphincter, which, though usually associated with fissure, is at times independent of it. Finally, the finger, if within reach, or, if higher, the elastic bougie, will reveal the obstruction.

DIAGNOSIS.

The symptoms already enumerated will furnish strong presumptive evidence of the existence of stricture, yet absolute certainty can only be obtained when it is located within the reach of the finger. The walls of a healthy rectum are smooth and free from tubercular elevations, corded ridges, or induration in every part of its extent. Ulcers may be felt as irregular, granulated surfaces of varying extent that can in some cases be exactly defined by following their margin, and any narrowing of the bowel becomes at once evident to the touch as a ring-formed contraction, into which the tip of the finger may be inserted and even passed above, and its width determined at once. The condition of the adjoining viscera, uterus,

prostate gland and bladder as felt through the rectum must be carefully noted, as their nerve supply and that of the rectum spring from a common source, and bind them in a common chain of sympathies, so that a diseased condition of any one of them may occasion disordered functional activity of the others. On the other hand the topographical relations of the pelvic viscera render the rectum liable to temporary mechanical interference by the displacement or disease of these organs, which must be discriminated from true stricture. Versions or tumors of the uterus, ovarian disease, pelvic hematocele, fibrinous bands, enlarged prostate, tumors growing from the sacrum, or located in the tissues between the bladder and the rectum are the chief conditions that may induce phenomena similar to those of rectal stricture. A careful physical examination of the bladder, prostate and uterus, with appropriate instruments, will reveal the presence or absence of organic disease in these organs. Should this fail to show textural changes capable of determining disturbance in their functions, an exploration of the rectum may at once supply a clue to its origin.

Symptoms simulating those of rectal disease sometimes arise in imaginative persons with an impressible nervous system, irritability of the muscular fibre and dyspeptic derangement, which will embarrass the diagnosis until eliminated by a searching physical examination. In women the vaginal touch should not be neglected, for a stricture of the rectum may be felt through it, and its thickness and width determined. For the correct treatment of the disease it is also of prime importance to discriminate the various kinds of stricture.

The congenital form will usually betray itself, as a rule, in early life By obstinate constipation and the distressing symptoms which follow from it, although Le Dentu* mentions an instance in which it passed unrecognized during life, and in Buisson's case the patient was forty years of age before seeking surgical relief. It is usually located near the anus; in four of the seven cases collected by Reynier† it was two or three centimetres above it; in one, in the middle portion, and in another, at the junction of the middle with the upper third. The form of the stricture is diaphragmatic, crescentic or bridle-like, and a character peculiar to it is its thinness. The mucous membrane of the bowel is smooth, and does not present the rugosi-

*Thèse de concours, Montpellier, 1851.

†Gazette Hebdom., tome xv., 759, 1878

ties and inequalities of syphilitic stricture, nor is the contraction re-established after incision.

Syphilitic stricture mostly occurs in women between twenty five and forty five, is always located within reach of the finger, is very firm, being seldom more than half an inch wide, forming a ring-shaped or tubular contraction, and not a tuberous mass as is often the case in cancer. The surface is relatively smooth, and the thickening is uniformly dispersed in the rectal walls. There is more or less discharge of pus or muco purulent matter, sometimes streaked with blood; condylomata about the anus, and indolent glandular enlargements in various parts of the body may also be present. There will be a history of antecedent syphilitic trouble. The course of the disease is chronic, often running on for five or more years.

Godebert* who divides syphilitic stricture into secondary, tertiary and quaternary, says that the former may ordinarily be easily distinguished from the two latter. Secondary stricture is generally not more than a centimetre in width, while the others occupy a more considerable extent; the former succeeds to syphilitic ulcerations characterized by a discharge from the anus, painful defecation, etc., while the latter begins insidiously, the constipation and alteration in the mould of the feces preceding the discharge of pus and the appearance of condylomata.

Malignant stricture is accompanied with an ichorous discharge of characteristic odor and the general health is more deeply and quickly affected, constituting the cancerous cachexy. To the touch the irregular tuberculated surface is marked, and often occupies one face of the rectum only, or is irregularly disposed; sometimes it forms a distinct mass, pushing the gut to one side or the other, rather obstructing than narrowing its cavity. These growths in certain cases may easily be broken down with the fingers. In the scirrhous form this is not the case, but the tissues are hard and resisting as in syphilitic induration, and when the former has run, as it sometimes does, a chronic course of three or four years without affecting very materially the general health, the discrimination between the two diseases is difficult, but the longer cases endure beyond this period, the stronger the probability becomes of their being syphilitic. The lymphatic glands between the rectum and sacrum may also be perceptible to the finger.

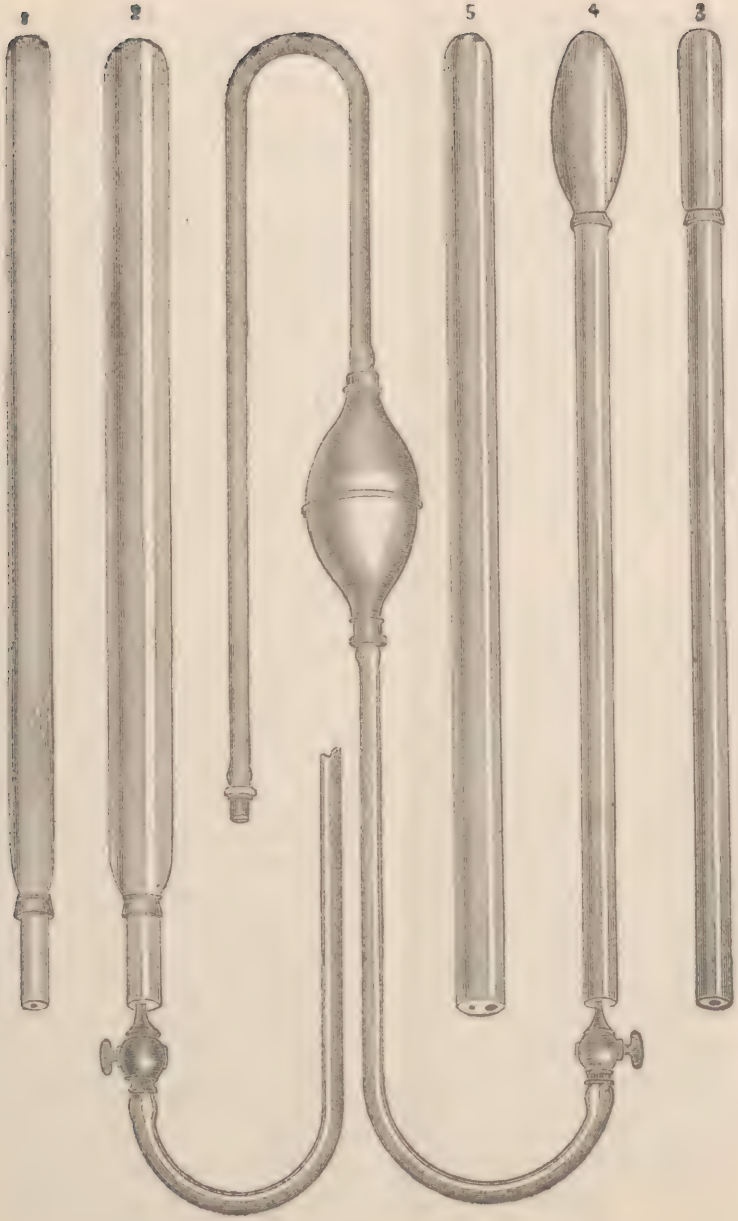
*Op. cit. p. 69.

It is important to recognize the connexion between the stricture and the sequelæ, or complications that may flow from it, as chronic diarrhœa, tenesmus, inflammation of the bowels, colic, ileus, hemorrhoids, fissure and cutaneous diseases about the anus, especially eczema. According to Sherwin, some of these formidable conditions may be successive symptoms of strictured rectum, and it is highly probable that under some of these appearances, many patients have died without the real cause having been assigned or suspected. I have recently had under my care a patient who had been treated for several months for obstinate diarrhœa, although stricture was the origin of the difficulty. The tenesmus of dysentery comes on quickly, is accompanied with bloody mucous discharges, severe burning pain in the rectum and anus, and there is little respite or relief from the straining efforts; the tenesmus of stricture is the reverse of this. Other conditions are also sometimes erroneously treated as the primary disease. It may be laid down as a good rule that whenever there are hemorrhoidal tumors or any form of excrescences about the anus, spasmodic contraction of the spincter, prolapsus ani, or any other apparent disease of the bowel, accompanied with symptoms of obstruction, a physical examination of the rectum should be instituted, for, although these various affections are most often primary, yet they are sometimes the result of stricture. Polypus of the rectum can readily be distinguished by its shape, and the anamnestic signs. Intussusception of the colon into the rectum has a different course from stricture, and the intussuscepted part can be defined by the finger which may be easily passed around it; and its aperture has not the characteristic hard and resistant feel of the former disease.

The only unmistakable signs of stricture as stated above, are furnished by physical examination. When within reach of the finger its determination is placed beyond doubt. In some instances it may be felt when quite high up, by causing a slight inversion of the bowel. To accomplish this, the patient is placed in an upright posture, when the weight of the diseased intestine, and any accumulated materials above will cause it to descend to a lower point, especially if straining efforts are simultaneously made. The range of the finger may also be enlarged by pressing up the perineum with the flexed fingers of the hand whose index finger is being used for the examination. Additional power may be gained, and fatigue of the arm avoided, by supporting the elbow with the opposite hand.

The exploration with the finger should be done gently, as serious damage may occur, as happened in Lannelongue's case, in which perforation and pelvic cellulitis followed. When the stricture is beyond the sweep of the finger recourse must then be had to bougies, and the elastic instrument is the best. Sir Charles Bell devised an explorer, consisting of an ivory ball mounted on a brass rod, which is now sometimes met with in the shops, but rarely used. The elastic bougie handled with skill furnishes all the information that can be gained in this way and there is little likelihood of its point catching at the sacro vertebral promontory or in the rectal folds. This instrument may also be converted into another form to be used in exploration, as shown in the annexed cut, figures 3 and 4, by slipping a close fitting hood of rubber, two or three inches long, over its point and securing it with a thread. The instrument thus made ready should be well coated with a stiff grease, as cosmoline, which I find works better than sweet oil in facilitating its gliding over the mucous membrane. When the point is lodged above the stricture, a syringe is attached and the rubber hood distended by water or air (I prefer the former) into a ball an inch or more in diameter. Gentle traction is now to be made, which will cause the ball to move slowly along the bowel. If no obstacle is present the ball will soon emerge from the anus, on the contrary any obstruction will arrest it. It may be that spasmodic contraction will have a like effect, but this can be easily distinguished from that of permanent stricture by keeping up the traction a few moments until the muscular spasm relaxes, when the ball will again slip on. In cases of organic narrowing, its degree can be approximately determined by maintaining the traction upon the explorer, while the water is permitted to flow out in a gentle stream, the moment the ball is reduced in size to that of the diameter of the stricture, it will pass through. The height of the stricture may be also at the same time determined by deducting the length of the bougie projecting from the anus from its total length. Allingham uses vulcanite balls of different sizes, mounted on pewter stems with flattened handles.

The entire hand can be introduced into the rectum for purposes of exploration. I have executed this maneuvre several times without much inconvenience to the patient or subsequent trouble with the sphincter, which, when the operation is gently performed, is not ruptured and soon regains its contractility.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If the stricture be low down, no service can be derived from the speculum, but when higher the surface of the stricture and the interior of the rectum may be inspected with the utmost facility, either by natural or artificial light. I have been in the habit of conducting the examination with the patient in the knee-chest position before a window so that a strong light may fall into the speculum; should this not be practicable recourse may be had to the light from a gas jet surrounded by a cylinder fitted with a double convex lens. In case the endoscope is used, the patient may be placed on his side, with his buttocks overhanging the end of the table, and the artificial light so placed that it may be reflected by the mirror.

The utmost gentleness has already been urged as necessary in digital examinations and it need hardly be mentioned that the use of bougies requires still greater care and circumspection, as dangerous and even fatal results have been caused by them in skillful hands. Le Dentu reports a case of perforation with a gum elastic bougie, followed by peritonitis and death.

PROGNOSIS.

The prognosis of stricture will depend upon the origin of the disease, the progress it has made, its position and its early recognition. Simple stricture of limited extent with slight thickening of the muscular walls, and moderate contraction, especially when not beyond the reach of the finger, offers promising results by continuous and well-directed treatment. The prognosis, on the other hand gains very grave significance with the occurrence of ulceration and impairment of the constitutional powers. But it is remarkable how long the general health remains apparently undisturbed in some cases, and even after complete obstruction, life has occasionally been prolonged many weeks. De Leon* records a case of this sort in a pregnant woman of twenty-five years of age who lived ten weeks and gave birth to a dead child of seven months just before death, and Salmon† another, in which the patient survived fifteen weeks.

Although the stricture may have been fully dilated with the most

*Am. Journal Med. Science, vol. 2. p. 330, 1828.

†Essay on Stricture of the Rectum, p. 256, 1833.

marked improvement in the general condition and complete amelioration of the symptoms, yet the patient will have to persist, even for years, in the use of the bougie, to obviate the great tendency to a renewal of the contraction.

Syphilitic strictures are obstinate but they may be palliated by judicious treatment. White* says that the cases he had encountered were all in females and uniformly proved incurable; it is astonishing how many years patients will labor under this form of the disease before it proves fatal. Gosselin attributes the difficulty of effecting a cure to the fact that, in the first place, the new fibrous tissue which constitutes the stricture, do what we may, will retain its retractile character, even under the influence of repeated dilatations. It may be softened and become a little more extensible, but the bowel will never regain its normal capacity; in the second place, the purulent discharges, which originate from ulceration extending far above the stricture, cannot be checked, and tend to consume the constitutional powers, both by the exhaustion which they cause and by poisoning the blood by absorption.

Malignant stricture presents the worst prognosis both as regards amelioration and prospects of life. The *scirrho contracted* rectum, as it was denominated in the beginning of the present century, was regarded as a condition beyond moral aid, and uniformly fatal. Sherwin,† in speaking of it, says that it comes on in the most gradual and imperceptible manner, slow in its progress, but terrible in its consequence; it yields not to medical assistance, but must, under the best management, become ultimately fatal. It however admits of palliation, and if early discovered will also admit of the last moments of the patient being rescued from unavailing, mistaken and harassing attempts to cure. Dupuytren also alluded to these cases when he made the statement that "bougies give relief, but do not effect a cure," and subsequently the same language was used by Colles‖ who says is that he felt confident that "a perfect cure of the organic structure of the rectum has not been effected by any plan of treatment hitherto employed;" that he had paid great attention to the use of bougies, and candidly declared that he had not been so fortunate as to effect a permanent cure in a single instance, nor

*Op. cit, p. 7.

†Memoirs of the London Medical Society, vol. 2, 1789.

‡Lesions of the vascular system, &c., Sy. So. Pub., p. 156, 1854.

‖Dublin Journal Medical Sciences, vol. xvii, p. 86.

had he the good fortune to meet with any patient whom he knew to have been afflicted with the disease who had been cured by another surgeon.

It may also be stated that none of the various surgical procedures involving incisions have produced a radical cure in confirmed syphilitic stricture, or done more than to alleviate the sufferings from obstruction, in the malignant variety. Sudden and fatal impediment may occur in simple stricture by the accidental lodgment of hardened fecal matter or of some foreign body, as the seeds of fruit, a cherry or plum stone, or a bone.

The most satisfactory cases are those of congenital origin, which are often radically cured by timely incision before organic changes have as yet been induced in the rectal walls.

TREATMENT.

In the treatment of stricture of the rectum recourse must be had to both general and local measures. The accumulation of fecal matter should be avoided by the occasional use of mild laxatives, such as castor-oil, and by enemas of warm water. The habitual administration of active cathartics ought to be condemned as calculated to induce undue irritation in the bowels and aggravation of the disease. The most favorable influence may be exercised upon the gastro-intestinal canal and the general health by special attention to the diet, which should consist of vegetable and nourishing articles. Among the best of these may be mentioned milk, broths and beef tea, which, besides their alimentary value, yield the smallest amount of fecal residue to embarrass the bowels. Rest is an important adjunct in the management of these cases. The general health may be improved by the administration of the bitter tonics, iron, cod liver oil and arsenic, and the use of sulphurous and alkaline baths. In the earlier stages of syphilitic stricture, advantage may be expected to accrue from specific treatment with potassium iodide and mercury, but when the normal tissues of the rectal walls have been replaced by, or thoroughly infiltrated with neoplastic material, little if any benefit can be derived from it. Cornil* says that these agents are absolutely without effect against such strictures.

Local treatment has for its object the enlargement of the contracted bowel, and the removal by absorption of inflammatory products deposited in its walls. Several procedures have

*Leçons sûr la syphilis, p. 413.

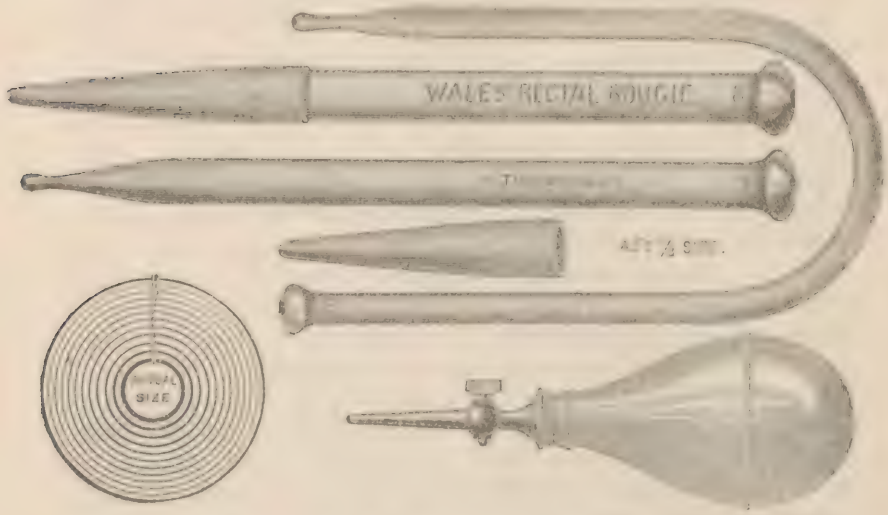
been employed to accomplish these objects, as resolvent applications, electricity, dilatation, incision and excision. When the stricture is irremediable by these means, as a *dernier resort*, the establishment of an artificial anus by colotomy has found favor with certain surgeons.

Dilatation was frequently resorted to at an early period, with the double object of securing the mechanical effects of stretching, and at the same time the influence of certain ointments supposed to possess resolvent virtues, and which were smeared upon the instruments introduced into the rectum. The intention was to secure a gradual dilatation, and hence various porous materials were selected for the purpose, which, by the absorption of moisture, slowly enlarged and pressed upon the stricture. For this purpose Dessault was in the habit of using tents of lint, knotted and folded in the middle, smeared with cerate, and pushed into the rectum with the assistance of a forked probe. He relates several cases successfully treated in this manner. Sir Charles Bell recommended tents of rolled lint; Wiseman, of gentian root; and Curling, of sea tangle, or *laminaria digitata*. According to Esmarch,* in Germany and England, this plan, having fallen into merited neglect, bougies made in various ways have been substituted. The ordinary mode of preparing elastic bougies was with a woven silk sac, covered with linseed varnish, and filled with wax. The rigid character of the larger sizes of these instruments induced many surgeons to abandon them for the wax bougie made by rolling up linen saturated with wax into a cylinder. The sort in general use in this country, under the name of "English rectal bougie," up to the time of the introduction by myself of those made of pure gum, was prepared in this manner, with the addition of a spiral of iron wire in the larger sizes. The pain and danger inseparable from the use of these stiff, inflexible instruments were early recognized in England. White abandoned them for a bougie made by dipping a long piece of lint into a mixture of wax and lard. Curling employed bougies made of wax and elastic gum webbing. Ashton says "bougies are made of various substances—metal, wood, cloth covered with plaster, and elastic gum; only those formed of the last two materials should be used when the stricture is not close to the anus." He gives the preference to the elastic gum bougies made of gummed webbing, which are

*Handbuch der allgemeinen and speciellen Chirurgie, vol. 3, p. 113.

more flexible than those usually sold in the shops, formed of plaster. Other surgeons have employed instruments made of hard wood, metal and gutta percha.

With the view of obviating all possible objections to mechanical dilatation, I devised, for the first time, in 1876, rectal bougies made of *pure gum*, (not, as heretofore, of gummed cloth webbing, or other materials) of exceeding flexibility, smoothness, and varying in size. A conduit runs through the centre, and terminates



in the point of the bougie, for the purpose of commanding a stream of water that might be required at any moment to facilitate the introduction of the instrument. The points of the bougies are made in various shapes, spherical, conical and olivary, with the view of meeting the necessities of special cases. The surface is perfectly polished, which, by reducing friction, increases the facility of introduction, and eliminates the unpleasant sensation of dragging caused by a rough instrument.

The method of introducing the bougie is simple. The patient, after the bowels have been cleaned out by injection, is placed, reclining on his left side, upon an ordinary operating table, the thighs flexed, and the buttocks just overhanging its lower edge. The smallest sized instrument likely to pass the stricture is smeared

with grease, its point inserted into the anus, and gently pushed onward in the following manner: The right hand grasping the bougie close to the anus, the whole perineum is pressed upwards, which will advance the point of the instrument; the left hand now steadies it, while the right is slid downwards for a lower hold, the perineum, of course, settling with it; the bougie is again pushed forward in the same manner until the obstruction is passed. I have occasionally found that this manœuvre may be greatly facilitated by sinking the fingers of the left hand deep into the left iliac region, and drawing upwards, as though an effort was being made, so to speak, to stretch out the sigmoid flexure, while pressure is maintained at the same time upon the bougie in the manner described. Another practical point of prime importance is to employ a stream of water, as warm as can be comfortably borne, propelling it through the conduit of the instrument, whenever its point is arrested from any cause. The water, flowing from the distal aperture, will distend the bowel, efface its folds, and break down any hardened feces which may exist, obstructing the ascent of the bougie. An assistant may manage the syringe, throwing in the water in such quantities as may be needed, while the operator is engaged with the bougie. It must be borne in mind, however, that no great volume should be used at once, otherwise the bowel will be excited to energetic contraction, and compel the instrument to be withdrawn before it has been properly lodged. In preliminary trials, the bougie may be permitted to remain two or three minutes, and afterwards, when greater tolerance is established, a longer stay may be allowed. I rarely exceed five minutes in any case, even when the patient makes no complaint of irritation or pain. After several introductions of one size of the bougie, say number seven or eight, the next largest may be taken, and so on, until the stricture has been sufficiently dilated.

The application of the instrument may be repeated twice or thrice a week, according to circumstances, such as the irritability of the rectum, temperament of the individual, and intercurrent attacks of diarrhoea or other trouble. Twice a week, in my experience, suffices in most cases: a fortunate issue, if attainable, can only be brought about by patient and prolonged treatment.

Rudeness or violence inflicted with the view of hastening the case, can effect nothing but harm, and may jeopardize the life of the patient. If the instruments be hastily thrust

into the bowel it may be perforated, especially in those cases in which inflammatory softening or ulceration exists: or if it be too large, the rectal mucous membrane may be ruptured, giving rise to smart hemorrhage; or the entire wall of the bowel may be ruptured into the peritoneum, an accident that is pretty sure to be followed by peritonitis, with all of its attendant dangers. But these finest consequences are infinitely less liable to follow the use of India rubber bougies than of any other sort, for certainly, *a priori*, nothing could furnish a milder, more equable and less dangerous force than these; and experience shows this to be the fact.

It often happens that, after the most patient devotion to this method of treatment, the bowels do not regain their functions, even after the largest size bougie has been passed with ease. This result is due in part to the long continuance of the expanded condition of the bowel above the stricture, by which its muscular walls have been more or less paralyzed.

A very gentle pressure can also be obtained by converting the bougie into a dilator. For this purpose, I had each bougie provided with a gum sheath which accurately fitted it. Thus prepared, by adjusting a rubber bag or an ordinary syringe to the butt of the bougie, air or water may be thrown into the sheath its whole length, or into any section of it, by tying a silken ligature about the instrument at the point to which it is desired to restrict the dilation. It is not desirable to distend the sheath largely, not more than will represent the diameter of a bougie two sizes larger than the one in actual use. The sheaths under this degree of pressure will expand uniformly or cylindrically, while a greater degree will cause it to bulge irregularly, or burst it. In the latter case, however, there is no danger, as a low thud and a peculiar sensation felt by the patient at the moment announce the accident, and may alarm nervous persons. The amount of pressure above stated is all-sufficient, and, therefore, those instruments, of which there are numerous forms, specially contrived to gain great mechanical power, are both unnecessary and dangerous. Since I first brought to the notice of the profession rectal bougies made of pure gum, I have used them many hundred times, and they are employed now, I believe, to the exclusion of all others. I have neither myself seen any inconvenience or dangerous results follow, nor have I

heard of any accident occurring in other hands. Some of my friends had, however, expressed a suspicion that, being so soft and flexible, they were likely to deceive by doubling in the intestines instead of slipping along the mucous membrane; but in all cases, except in very adipose subjects, when the bougie is properly lodged, it can be felt through the abdominal walls lying straight along the lumen of the bowel. I have not as yet seen the bougie perform the whimsical caper of knotting, which occurred in one of my cases in which I had used a long, flexible tube, such as is ordinarily found in connexion with the stomach pump. It was passed eighteen inches into the bowel, and, as I supposed, stretched out its full length. On attempting to withdraw it, resistance was felt, which required no little tractile force to overcome. The difficulty was at once apparent; the tube was tied in a single knot.

Forcible dilatation has been practiced, but has few advocates at the present time. It is dangerous in itself, is liable to excite rectal or peritoneal inflammation, and possesses no advantage over other methods. Allingham* relates the case of a young woman suffering from stricture about three inches from the anus, which was forcibly stretched by Todd's dilator. A short time afterwards a great discharge of blood took place upon going to stool, which caused her to faint, hemorrhage recurring when reaction set in. The rectum was plugged with a large piece of sponge thrust into and beyond the stricture, and the space below packed with wool. The hemorrhage was arrested, the dressing remaining in three days, causing very considerable pain.

There are various mechanical contrivances that have been devised for this purpose, but they are now discarded. Among the best known are the dilators of Arnott, Todd, Gariel, Costellar and Bushe. Curling saw a bowel bursted by a surgeon with one of these instruments, and the patient died. In obstinate stricture Curling employed bougies made of sponge coated with tallow.

Incision, or rectotomy, has long been favorably known to surgeons as furnishing, in properly selected cases, most striking and satisfactory results. In certain conditions, employed alone, or in conjunction with dilatation, it has effected permanent cures; and in other conditions, where the ravages of disease are widespread, or where it presents malignant characters, so as to baffle all other means

*Op. Cit., p. 210.

of relief and to render life intolerable, recourse to judicious incisions has often secured not only exemption from the horrible sufferings of complete obstruction, but even, in necessarily fatal cases, from discomfort and inconvenience. The operation thus offers curative and palliative results in a wide range of cases; but, like all other surgical procedures, it has its limits of application, and requires the exercise of skill and judgment in its use to individual instances. The fundamental idea, in all cases, is to secure by incision a division of the stricture, and this may be done in different ways and by several means. In regard to the method, the incision may be made through the stricture with the knife without involving the sphincter—internal proctotomy; or, at the same moment, in addition to the division of the stricture, to carry the knife through the sphincter and perineum towards the coccyx—external proctotomy. The first operation is quite ancient, but the latter modification dates from a more recent period, and the merit of its introduction is usually referred to Nelaton, though, according to Godebert, it was employed in 1838 by Stafford, while others accord the merit to Humphreys.* Among the ancients the treatment of rectal disease in general was characterized by the utmost freedom of recourse to the severest surgical processes, if we are to believe that the statements of Hippocrates either represented or influenced the prevailing practice. He says: "Rectum enim intestinum et secans, et reseeans, et consuens, et urens, et putrefaciens etiamsi gravissima, haec esse videantur, nihil laeseris." But the fact is, comparatively little was known of their nature, diagnosis and treatment until the beginning of the eighteenth century. Without doubt, had stricture by any accident been discovered in those times, it would have been incised, and perhaps many were thus treated, of which we have no record. The earliest case I can find is that reported by Wiseman.† He gives the history of a man who suffered from perineal abscess, resulting in fistula, which was treated by both knife and ligature. As the wounds healed, stricture formed, "about an inch or more within the rectum." Dilatation with tents made of gentian root and deer suet was tried first, without avail. "The bowel being choked up," he says, "our work was the dividing the callus which made the stricture, which we did by an instrument made for the purpose, with which, without

*Association Medical Journal, p. 21. 1856.

†Severall Chirurgicall Treatises, London, 1676, p. 237.

hurting the intestine, we cut through in several places, making the opening so large that the excrements came away big; and by the injecting of *ol. lubricorum*, cured the wounds in a few days after, and left him at liberty; yet, within this twelve months, twice we have enlarged it, and by the instrument we designed, it may at any time be helped without hazard of wounding the sound parts near it; but, since the last incision of it, it hath continued open, and, upon a late search with my finger, I could see nothing of it."

In the above case the obstruction was seated near the anus, and there could have been no doubt as to the judiciousness of the operation performed, as there was neither danger nor difficulty to weigh against the hoped-for advantage of free issue to the feces. As regards internal rectotomy, the chief points in considering the applicability of the knife to non-malignant stricture are two—its height and its width. The higher it is situated, the greater the difficulty and danger of incision, and I am not aware that any case has been recorded in which a stricture beyond the reach of the finger has been so treated. Its situation decides the propriety of internal rectotomy for many surgeons, as Quain, Mayo, Salmon, Syme and Bushe,* and the practice recommended by them is set forth by the latter. "When the stricture is near the anus, narrow and firm, the surgeon may hook it down with his finger, and then partially divide it in two, three or more points with a hernial knife." Even when located higher, its incision was recommended as not presenting either difficulties or dangers by Howship, Copeland and Calvert,† the latter of whom speaks, in very decided terms, as follows: "When the stricture consists of a narrow, indurated septum within reach of the finger, and the bougie either does not agree or is a long time effecting the dilatation, the best and shortest method is to divide it in the direction of the sacrum, and with a probe-pointed bistoury . . . . . it is not attended with any danger, either from inflammation or hemorrhage; . . . . . the division may be performed in one or more directions, but sometimes it answers the purpose equally, and is safer to divide the stricture towards the sacrum only."

[To be concluded.]

*A Treatise on the Malformations, Injuries and Diseases of the Rectum and Anus. New York, 1837.

†Practical Treatise on Hæmorrhoids or Piles, Strictures and other important Diseases of the Urethra and Rectum. London, 1824.

As to the width of the stricture, it need hardly be remarked that internal rectotomy will not be applicable when it much exceeds half an inch. There certainly is considerable variance in this respect, but in the greater number of cases the width rarely exceeds half an inch, and in numerous instances the stricture is simply a bridle occupying a part of the circumference of the bowel, or extending quite around, under the form of a diaphragm with a central aperture. Wide strictures may be more advantageously treated by external rectotomy.

The incision may be single or multiple, and made at any part of the intestinal wall, though usually it is recommended as safer to incise posteriorly in the median line, and rather by several nicks in various parts than by one cut. With proper precautions, there is no doubt that the rectotomy may be safely performed with the very best results at any part of the bowel within reach of the finger, and, although Vidal* regards it as impracticable, yet I am even sanguine that strictures higher up may become manageable in some way with properly constructed instruments.

In making the incision, ordinarily the blunt-pointed bistoury is used, though special knives have been claimed as possessing particular advantages. Tillaux, in very narrow stricture, used an instrument constructed like a urethrotome. The one employed by me was made several years ago by Tiemann & Co., of New York, as shown in the cut. It is blunt-pointed, with a cutting edge of three quarters of an inch, which merges into a round and long shank.

As complications of rectotomy, we find enumerated in the books a formidable array, viz., hemorrhage, fecal extravasation, abscess, fistula, pelvic peritonitis, pelvic cellulitis, peritonitis and septicemia. Were stricture cases clearly made out at an early period, before much change had been occasioned in the intestinal walls, I believe that many of them might be submitted to the knife with the happiest results. No fear need be felt that union of the edges of the wound will occur, inasmuch as they will widely gap from the resiliency of the divided tissues. In most of these cases, diarrhœal and purulent discharges are constantly passing through the rectum, and would

*Thése de Concours.

militate against any form of repair except that by granulation. From this point of view, the advice of certain authors to thrust in a large bougie, and to retain it for some time after rectotomy, would seem to be altogether unnecessary, if not positively injurious. I prefer to wait for several days until the wound begins to cicatrize, at which time contraction of the newly formed tissue occurs. Allingham says that he has learned one thing in his long practice—not to fear any hemorrhage from the rectum.

The chances of success of rectotomy will be greatly promoted by preparing the patient by three or four days of preliminary treatment, by the administration of laxatives, and the daily introduction of one of the smaller rubber dilators far up the bowel, through which carbolized water may be injected in sufficient quantity to clean the intestine thoroughly. During these few days the patient should be fed on fluid food, milk, beef tea and egg-flip.

When the operation is completed, opium should be given freely to relieve pain and to quiet the bowels. The local treatment is of importance to prevent the intestinal excretions coming in contact with the wound until the gap made by the knife into the adjacent tissues has become infiltrated with plastic lymph, which will occur in forty-eight hours or so. A piece of fine sponge secured to a curved gutta percha tube opening beyond the sponge may be inserted above the incision, and held in place by tapes tied to a waist band. This contrivance, I have found, can be borne two or three days. In case of hemorrhage, the gut below the sponge can be packed if necessary.

External rectotomy or proctotomy consists in a division of the stricture, together with the structures of the perineum, by an incision passing in a posterior vertical plane. This procedure has been advocated for the radical relief of simple stricture, but more particularly for extensive disease of the rectum, when the obstruction is broad, with much ulceration, and in malignant cases as a substitute for excision and colotomy, where the only hope is to relieve the sufferings arising from complete closure of the intestine. In most of these cases the reflex action induces spasmodic contraction of the sphincter, which adds greatly to the distress of the patient, and prevents local treatment of the ulcerated bowel. The free division of the muscle involved in this operation removes these embarrassments, and secures a large channel from the bowel above to the exterior, which facilitates drainage, secures complete evacuation of the intestine, and thus

obviates fecal extravasation. The opening is little liable to close up, and affords complete access to the diseased parts. The operation as performed by Humphrey and Panas is done with the knife, which is carried into the bowel above the stricture, guided by the finger, and is made to divide the sphincter and all the intervening tissues nearly to the tip of the coccyx, forming a triangular wound, with the apex above and the base at the perineum. Verneuil has suggested and employed, as far less dangerous from hemorrhage, the écraseur and galvano-cautery. In the application of the écraseur he introduces a finger into the rectum above the stricture, and plunges a trocar into the perineum, entered at a point anterior to the tip of the coccyx, to the point of the finger. The trocar is then withdrawn, leaving the canula in situ, and through this he passes a small, flexible bougie, with which he drags the chain along the wound, and externally through the anus, thus encircling a triangular mass of tissue including the stricture, which is slowly cut through. When fistulous canals run above the stricture, he made use of them for passing the chain. Afterwards he touched lightly the wound made by the écraseur with the actual cautery. The loop of the galvano-cautery may be introduced in the same manner, and the section effected with the incandescent wire; or the incision may be made with the galvano-cautery or thermo-cautery knife from within outwards. With the knife there is usually a free hemorrhage, which may be readily checked, either by ligature or by packing the wound with lint. After two or three days the lint may be removed, and the wound kept clean by the occasional use of a stream of carbolized water.

Allingham has performed external rectotomy in sixteen cases with the knife; many of the patients have done well, and permanent cures were effected, and others failed.

Excision has been designed either to remove solely the cicatricial or indurated segment of the rectum, the upper margin of the mucous membrane being brought down and stitched to the sphincter, or to include with this segment the entirety of the bowel below, the mucous membrane in this case being brought down and sewed to the integuments. The excision of simple benign strictures has been performed in the former manner by Dieffenbach. The operation is, however, usually performed for malignant growths, the bowel being dissected up and cut off above the diseased district.

Lefort employed electrolysis, and asserts* that in two cases in which dilatation had failed, a rapid cure was obtained. The poles of the battery were introduced through a gutta percha canula. Actual and potential cauterization has also been applied to strictures by Robert, at the hospital Beaujon, and by Sanson and Home, but without success; the subsequent contraction after the eschar comes away rather aggravates the case so that Chassaignac's criticism of the method as one rather calculated to produce the disease than to cure it, is merited.

Colotomy. When all other means fail in relieving strictures that have progressed to complete occlusion, or have inflicted so much damage upon the rectum that the patient is willing to risk an unendurable life for the chances of amelioration, the propriety of forming an artificial anus presents itself for consideration. In rare cases it is not impossible for the stricture and ulceration to be removed, when the lumbar opening can be closed. There are two operations by which the colon has been penetrated and artificial anus established; one in the left groin, known as Littré's method, and the other in the lumbar region, called Cullisen's method, or Amussat's, which is a modification of the former. There are other points at which the operation has been proposed in exceptional cases, as in the right lumbar region.† Malignant stricture or extensive ulcerative destruction are ordinarily the conditions for which this extreme measure has been employed, and therefore the results have not been as encouraging as they might be under more favorable circumstances. Besides, the operation is generally delayed so long that the powers of life are nearly exhausted, and local changes have progressed to an extreme degree. The danger to life in the operation is not so great as is commonly believed, and especially in the latter method, wherein the peritoneum is respected. Curling has performed the operation eighteen times, and taken part in three other operations. Fourteen of these cases recovered, in two of the seven fatal cases, the unfortunate result was due to chloroform; in one case of thirty days obstruction, peritonitis was set up; one died of peritonitis set up by cancerous disease in the rectum; one died of pyemia and two of exhaustion, one on the sixth day, and the other on the twelfth. Dr. Mason‡ of

* Gazette des Hopitaux, p. 221, 1873.

†See vols. 34 and 35, Transactions of the Medico-Chirurgical Society.

‡Am. Journal of Med. Sci., 1873, p. 354.

New York, gives twelve cases, including two of Curling's; of these, eight recovered. Allingham operated in ten cases of the seventy mentioned by him, and sums up the result thus: "I believe several (5 or 6) are now alive. Two of the women have married since the operation." Further experience, he says, has led him to hold colotomy as a last recourse for total obstruction.

Of Bryant's* twenty-nine cases of colotomy for rectal stricture, cancerous and otherwise, one lived three years after the operation, and one eighteen months, dying from supposed cancer of the liver after a month's illness; two lived ten, and three for five months; eight survived the operation from seven to eighteen days; eight died within a week, the operation in the majority of these cases having been undertaken as a last resource. Six were alive when last heard from, two having been operated upon three years previously: two, two years, and two within the year. In every case marked relief was afforded to symptoms, and in many, the patients' expressions of gratitude for such were very strong, several having deeply regretted that the operation had not been performed at an earlier period.

Von Erckelens gives an analysis of one hundred and sixty-four cases of colotomy by Amussat's method. Of these thirty-eight were for stricture, of which twenty-five survived and thirteen died. Also eighty-three by Littré's method, of which nine were for stricture; three recovered and six died.

I append the following illustrative cases:

Case I.—W. F. R., æt 52, native of Pennsylvania, came under my care August, 1882, with the following history:

In March, 1863, the vessel to which he was attached was lost in the Mississippi River, and, in making his escape, his clothes became thoroughly soaked with water. After walking some distance in this condition, he sought and found refuge on board a ship of war. Three days later, while going down the river to New Orleans, he "passed from the bowels blood and green mucus." After remaining some weeks in New Orleans, he went North, and after treatment for a short time, he reported himself, in August, 1863, for duty, when he was attached to a vesssl which shortly after sailed for the coast of Brazil. Here the diarrhœa returned, the evacuations painless, but very frequent, and he was constantly under treatment without im-

* A Manual of the Practice of Surgery, Philadelphia, 1881, p. 480.

provement. Returning to the United States in November, 1864, he spent the spring and summer of 1865 in Philadelphia, the disease and treatment continuing. In November, 1865, some improvement showing itself, he went to the West Indies on duty, where the symptoms became much aggravated, and he was obliged to return to his home in Philadelphia. After some months of treatment he again improved, and was assigned, in June, 1867, to duty in the European Squadron, where he remained about two years. During this time his health was better, but he suffered from occasional severe attacks of diarrhœa, which greatly prostrated him. After his return in February, 1869, he was ordered to Pensacola, Fla., where his trouble reappeared with severity, being accompanied by severe pain in the head, described as being in the region of the ear, together with great difficulty of breathing. The discharges were green, tinged with blood, at times black, presenting the appearance of coffee grounds, and they were sometimes involuntary. Becoming entirely unfit for duty, he was invalided North, and went to Philadelphia, where he remained for treatment. He had by this time lost control of the bowels, and became nervous and very much depressed in consequence. There was no pain, but a constant dragging down sensation at the anus, with a persistent inclination to go to stool. In September, 1877, he went to the Colorado Springs, where he remained two years under treatment without benefit. He then went to Cincinnati, Lancaster, Pa., and Philadelphia, consulting various physicians, finally coming to Washington to consult me. At this time he described his condition as follows: "My disease has been worse in the past year than it has been for the years previous. Some of the peculiarities connected with my case are—pain and throbbing at the back of my head, and difficulty of breathing if from any cause my discharges are suddenly checked. Any excitement, change of weather, receiving unexpected news or callers, any exertion, such as shaving or preparations to go out, invariably cause me to have a passage. From these causes I often have three or four passages, and always two. The discharges vary in form, from flat and tape-like shapes to those of the consistency of mush, and varying in quantity, from half a teaspoonful to a copious evacuation. Inability to lie on either side gives me great inconvenience, and during the last eight or ten months I have been much troubled with flatulency, and occasionally soreness in my bowels."

The patient, when he came under my care, had frequent calls to stool—from eight to fifteen in the twenty-four hours. There was a large hemorrhoidal tumor at the margin of the anus; just within the sphincter there were several small outgrowths the size of beans; when the finger was introduced to its fullest extent, similar growths were felt; at this moment, by directing the patient to strain forcibly, the constricted point of the bowel was distinctly felt by myself and professional friends who were present at the examination. The endoscope showed epithelial erosion in patches at various points of the rectum.

Under the use of the bougies the stricture was dilated, and the patient greatly improved, the number of dejections being considerably diminished and the strength of the patient much increased. The case is still under observation.

CASE II.—J. T., age, 41, was sent to me in August, 1882, by my friend, Dr. W. H. Bayne, Surgeon of the Providence Hospital, Washington, D. C. His story was as follows: Enjoyed vigorous health until the spring of 1878, when his bowels began to trouble him; from time to time there was looseness, the discharges being occasionally mingled with blood, alternating with constipation. He could not attribute this condition to any indiscretion in eating or to exposure; the appetite was always good and digestion perfect. He admitted that, two years before the beginning of the diarrhœa, that is, in 1876, he had contracted syphilis, having a hard chancre; the sore was cauterized and healed up; the glands of the groin became enlarged, but did not suppurate, and, under mercurial treatment, they gradually diminished in size, and no longer attracted attention. This was the only occasion he had been under medical care until the diarrhœa came on. This was prescribed for four years ago, and since that time he has been in hospital and under the treatment of various physicians; has been cauterized with nitric acid, etc.

When he presented himself to me, the discharges were thin and mixed with pus, occurring three or four times during the night, and as many times during the day. They were involuntary, so that he was compelled to wear a cloth to prevent the purulent and feculent matters from soiling his clothes. His general health remained fairly good (weight one hundred and fifty-six pounds) during the whole period, appetite good, but he was unable to eat vegetables, which caused an immediate call to stool.

Local examination showed the anus to be patulous, the surrounding region being discolored by eczematous eruption. On the left side of the anus was a growth of the size of a nutmeg, which involved both the cuticular surface and the mucous membrane, no line of demarkation separating the tumor from the latter. Upon the mucous surface there was a superficial ulceration, which could readily be inspected by pressing aside the margin of the anus. In the ampullary region, the entire surface was covered by similar growths, which, however, in some cases, were ridge-like or corded, the long axis corresponding with that of the rectum. Their surfaces were the seat of superficial erosions, and here and there were teat-like projections. At the depth of three inches the bowel was contracted, but the tip of the finger could readily be passed into the constriction.

I removed the growth on the outside with the scissors for microscopic examination; there occurred a sharp hemorrhage, the bleeding vessels could not be closed by ligature, as the tissues were so fragile that the thread cut through them at once, and the vessels were secured by acupressure. The removal of the tender growth facilitated cleansing, and did away with the suffering arising from the contact of the dressings intended to soak up the discharges. The rectum was irrigated with a dilute solution of carbolic acid, alternating with one of chloride of iron, which checked the free secretion, disinfected and rendered the condition of the patient more comfortable. Suppositories of opium and iodoform at night were required. Two or three times a week an elastic bougie, smeared with an ointment possessed of anodyne, alterative and detergent properties, as mercury, iodine, acetate of lead, etc., was directed to be used.

The patient's general condition has improved, the discharges have decreased in quantity, and his existence rendered more tolerable.

CASE III.—Mrs. S., age, 55, was sent to me by my friend, Dr. McArdle, of Washington. She relates the following history:

"I have nearly all my life suffered from constipation. About fifteen years ago, injections, my usual remedy, lost all effect. I often took four or five in succession, but with no relief whatever. Since then I have had much trouble, a week often passing without a movement of the bowels; or nature would relieve herself with diarrhœa. About four years ago, I began to have occasional pain at the extremity of the rectum, lasting about ten minutes only, but very

severe. The constipation was more obstinate, and often, during the day, great straining and effort would only produce small particles, less in size than my little finger.

"About thirty-seven years ago, I was dangerously ill with dysentery. During the attack I was prematurely confined, ulceration of the bowels set in, and my life was despaired of. While bearing my next four children, during the last five months of pregnancy, I suffered from a mild form of dysentery, which continued till the birth of the child. After these births I was troubled no more with dysentery, but obstinate constipation set in. Medicine was only a temporary relief, leaving me in a worse condition, injections being of no service whatever. With the torpidity of the bowels the contents passed became of smaller size, the pain and straining greater, until it became almost an impossibility to pass even the smallest quantity."

In this case I was able to pass a No. 4 bougie with difficulty through an obstruction six inches up the bowel, which caused severe cutting pains, and an aching sensation in the region of the sphincter; the patient said she had often felt this before. After a few weeks treatment, a No. 10 bougie was used with success, and the patient improved. The size of the fecal mass increased, but it was still flattened on one side and deeply grooved. The patient was taught to use the instrument herself, and she subsequently reported that her health had greatly improved, and that she could walk without the violent palpitation she had so often felt in exercising. Her bowels had become almost regular in their movements, with no pain, which had not been the case for years.